

IN THE CLAIMS:

Please amend claims 16 and 17 (twice amended).

Claims 1, 4, 8, 12 and 14 remain as currently amended  
in Applicant's May 26, 2004 Amendment.

1. (Currently Amended). A system for downloading firmware from a source module onto a controller of a storage medium with minimal latency of operation comprising:

(a) first source software means providing SCSI firmware for a disk drive and servo SCSI firmware for positioning said disk drive;

(b) a central processing unit having software programmable selection means for choosing single [[two-]] dimensional array means or dual two-dimensional array means for temporary storing said SCSI firmware prior to placement onto a target peripheral controller for said disk drive;

(c) means for temporarily storing different versions of said firmware until said target controller has been accessed to identify the proper version of firmware required;

(d) means for checking the pre-existing firmware in said target controller to determine whether an updated firmware version will be required for a subsequent download.

2. (Cancelled).

3. (Cancelled).

4. (Currently Amended). A system for downloading SCSI firmware and SCSI servo firmware in a rapid fashion onto a target control module, said system comprising:

(a) a source software means for said SCSI firmware and SCSI servo firmware, said source software means including:

(a1) control data received from tape, disk, CD-ROM or the World Wide Web;

(b) central processing means for receiving said SCSI firmware and SCSI servo firmware from said source software means and utilizing a local memory means for separate storage areas for said SCSI firmware and for said servo SCSI firmware wherein said central processing means includes:

(b1) software means for recognizing the number of bytes of said SCSI firmware and SCSI servo firmware to be downloaded;

(b2) means for selecting a buffer array size which most closely ~~approximates~~ accommodates said recognized number of bytes to be downloaded;

(b3) software inquiry means to said target controller to acquire identification information;

(b4) software means to determine, from said identification information, what version of said SCSI firmware and SCSI servo firmware will be downloaded to said target controller;

(c) connection means from said local memory means over to a selected one of a plurality of disk drives for temporary storage;

(d) peripheral controller means for loading said SCSI firmware into a first flash PROM and for loading said servo SCSI firmware into a second servo flash PROM;

(e) means to Write said SCSI firmware from said first flash PROM and Write said SCSI servo firmware from said second flash PROM onto a targeted peripheral controller for a disk unit.

5. (Cancelled).

6. (Cancelled).

7. (Cancelled).

8. (Currently Amended). A system for downloading the appropriate SCSI firmware and SCSI servo firmware onto a target module controller and overcoming the normal capacity limitations of temporary buffer storage comprising:

(a) software source means for providing SCSI firmware and SCSI servo microcode firmware for a target controller;

(b) processor means having means for providing first and second two-dimensional buffer array means for receiving and buffering said SCSI firmware and SCSI servo firmware destined for said target controller without adding any additional hardware;

(c) software control means for transferring said SCSI firmware and servo firmware onto a targeted peripheral controller for a disk unit;

(d) a library exported interface ~~(USERMAINTREQUEST)~~ for issuing a download command request and an inquiry command to query the said target controller, said inquiry command including:

(d1) means to check and compare the pre-existing firmware in said target controller to determine whether new updated firmware is required;

(e) software means to access the appropriate firmware release numbers and servo release numbers to enable a selection of the appropriate[[ly]] ~~proper~~ SCSI firmware and SCSI servo firmware;

(f) software selection means for selecting the appropriate ~~[[size]]~~ number of array means of said first and second two-dimensional buffer array means to most efficiently store said selected ~~proper~~ firmware;

(g) means for checking to indicate that ~~the proper~~ said selected SCSI firmware and SCSI servo firmware has been downloaded to the proper target controller module.



9. (Cancelled).

10. (Cancelled).

11. (Cancelled).

12. (Currently Amended). A software method of selecting and downloading the appropriate SCSI firmware and servo firmware for a selected target control module comprising the steps of:

(a) providing a plurality of storage media for holding different versions of SCSI firmware appropriate for different types of target control modules;

(b) utilizing a DFAST utility program for initiating a firmware download to a target control module, said DFAST program functioning to download firmware to SCSI devices;

(c) inquiring as to the identity and firmware requirements of a selected target control module said inquiring including the step of:

(c1) checking the pre-existing firmware in said target controller to determine whether or not said pre-existing firmware requires any updating from the selected firmware on the selected storage media;

(d) fetching, by said DFAST utility program, [[of]] the appropriate firmware file from said storage media;

(e) selecting a single or a double two-dimensional buffer array ~~appropriate to~~ which accommodates the byte count of said appropriately selected firmware for temporary storage;

(f) downloading the selected firmware by said DFAST utility program onto said target control module.

13. (Cancelled).

14. (Currently Amended). A system utilizing software means for rapid downloading, in one command cycle, of SCSI firmware and SCSI servo firmware into a target control module, comprising:

(a) first software means for initiating a SCSI Inquiry Command to said target control module via a Command Descriptor Block;

(b) second software means to query a designated target control module with information from a Page Code Field;

(c) third software means for enabling access to and acquiring a firmware page number and a firmware version number for said target control module;

(d) means for downloading said SCSI firmware and SCSI servo firmware [[data]] using selected [[sizes]] units of first and second two-dimensional buffer arrays;

(e) means for passing said SCSI firmware [[data]] onto said target control module;

(f) means for sensing when said SCSI Inquiry Command initiates an illegal request.

15. (Cancelled).

16. (Currently Amended). A specialized download operation method to download firmware which also includes servo firmware to a SCSI Target via a peripheral controller comprising the steps of:

- (a) downloading firmware to a designated SCSI disk drive device;
- (b) entering the name of the firmware file involved to enable said firmware file to be accessed from memory;
- (c) fetching said firmware file;
- (d) deciding whether [[YES]] or not [[NO]] to download said firmware file to said peripheral controller and if the decision [[YES]] is made to download, then;
- (e) entering the controller ID to select the appropriate controller;
- (f) assigning the selected controller for firmware reception;
- (g) determining that said selected controller has been assigned for utilization[[,]]; ~~and if said controller has been assigned for utilization then;~~
- (h) reading out the attributes of said selected controller;
- (i) comparing the firmware header file with the SCSI target attributes to see if the header file matches the target attribute, and if said header file matches said target attributes, {YES}, then;

(j) determining if the said firmware file is still to be downloaded, and if the determination is made that said firmware file is still to be downloaded, ~~{YES}~~, then;

(k) setting up the buffer arrays for use in the download;

(l) utilizing the download to a first two-dimensional buffer array;

(m) issuing a Write Buffer command indicating the total bytes of data involved;

(n) issuing a Test Unit Ready Command;

(o) reading attributes and displaying attributes of the data involved;

(p) issuing an inquiry command;

(q) displaying the inquiry data for said servo firmware to control tracking of the disk drive of the selected peripheral controller;

(r) downloading said firmware file to a selected controller.

17. (Currently Amended). The method of claim 16 wherein said step (d) indicates a decision not to download said firmware file to said peripheral controller, decision is NO, which then step (d) includes the steps of:

(dn1) deciding whether to load or not to download said firmware to the target device, and after deciding [[YES]] to download said firmware to said target device, then;

(dn2) entering said device ID;

(dn3) assigning the selected target device;

(dn4) reading said selected device attributes;

(dn5) comparing the header file with said target attributes for a match, and when [[if]] a match occurs, ~~(YES)~~, then;

(dn6) setting up an adequate number of two-dimensional buffer arrays for a download;

(dn7) inquiring about disk servo data to compare servo header firmware with target servo data for a match, and [[if]] when a match occurs, ~~(YES)~~, then;

(dn8) downloading said servo header firmware to said buffer arrays;



(dn9) checking if said servo header firmware is greater than 393,216 bytes and if said servo header firmware is greater than 393,216 bytes, then;

(dn10) utilizing said first buffer array of said two-dimensional array;

(dn11) issuing a sequence of Write Buffer commands to handle 8192 bytes of data for each command;

(dn12) utilizing said second two-dimensional buffer array for downloading 8192 bytes for each Write Buffer Command;

(dn13) verifying that all of the bytes have been downloaded;

(dn14) checking to see that the buffer array download has been completed;

(dn15) reading a Test Unit Command to recognize when a selected module is ready to receive data;

(dn16) reading the attributes of said Test Unit;

(dn17) issuing an Inquiry Command to said target disk servo device;

(dn18) downloading said servo firmware  
to said target disk servo device.